METHOD AND APPARATUS FOR DETECTING AND QUANTIFYING

IMPAIRMENTS IN QAM SIGNALS

ABSTRACT OF THE DISCLOSURE

5   A method for detecting and quantifying impairments of a received communication signal of a QAM data communication system represented by a plurality of ideal values. The method includes storing a statistically significant number of a plurality of received points of the signal for each ideal value corresponding to a plurality of groups of said plurality of ideal values. The received points are defined by an in-phase and a quadrature components in a coordinate system in which a first axis is the in-phase axis and a second axis is a quadrature axis. The components have corresponding ideal components from their respective ideal value. Each group corresponds to respective impairments and is specific to the same. The method also comprises analyzing the components of the points of respective group in relation with their respective ideal components to quantify the impairments of said signal and provide calculated values of the same. And displaying the calculated values of the impairments such as signal compression ratio, I/Q gain imbalance ratio, I/Q phase imbalance, phase noise, signal to noise ratio, signal to interference ratio and clipping level. The method also detects and quantifies other parameters of the signal such as real baud rate, real carrier frequency, amplitude and group delay response, and low frequency disturbance (hum) of the data communication system represented by a specific coding.